Section 8

Hydrogeological Assessment

Hydrogeological Assessment

Pursuant to the requirements specified under Section 4.2.1.5 for Delaware Regulation Governing Solid Waste ("DRGSW), this Hydrogeological Assessment Report has been prepared for the renewal of the Gold Medal Environmental of DE, LLC ("Gold Medal") Materials Recovery Facility ("MRF").

The MRF facility is located at 1000 South Heald Street in Wilmington, Delaware. The site is approximately 8 acres and is located on a portion of the former BUDD Metal Company site. The site has been certified as a brownfield site (DE-0270) by the Department's Site Investigation and Restoration Branch (SIRB).

The facility operations utilize existing buildings and structures at the site, including the Main Processing Building, the office/scalehouse, and the truck scale. Based on proposed modifications to the operations, the facility will require the addition of a covered tipping area to the existing processing building. During the construction of the tipping area, care will be taken to adhere to a health and safety plan and any disturbance of the engineered aggregate cap will be restored to assure protection to the groundwater Sorting and separation equipment will be installed in the existing building from time to time to add to or replace existing processing equipment, however, all equipment will be affixed to the existing concrete floor and is not expected to require any alteration of the existing structure.

On April 21, 2010, the SIRB issued an approval of a Remedial Action Completion Report ("RACR") for the site. A copy of the Department's April 21, 2010 approval letter along with excerpts from the final March 29, 2010 "Remediation Completion/Closeout Report for the Budd Metal Site (DE-0270) – Operatable Unit # 2 that was submitted by TetraTech is provided in Exhibit 1 of the Report. As outlined in the approved RACR for the site, the property is underlain by a shallow upper aquifer unit that is encountered at approximately three (3) feet below grade surface. Groundwater monitoring and sampling was conducted at the site as part of remedial activities. Based on the data collected and the source stabilization and capping of the soils at the

site (discussed further below), there was no further action taken to address groundwater at the site. However, since the site is located within a Groundwater Management Zone ("GMZ"), long-term groundwater monitoring is being conducted at the site.

The RACR also addressed the remediation of underlying soils at the site. The soil remediation included in-situ stabilization of onsite soils to reduce the mobility of contaminants present at the site. In addition, an engineered aggregate cap was placed across the site that was comprised of crushed concrete and/or asphalt pavement. These engineering controls were created to prevent any further exposure to underlying soils and to improve site drainage. In addition, the cap provides a suitable barrier on the property to protect the groundwater onsite from future use of the property, such as the continued operation of the Gold Medal facility.

In accordance with Section 4.2.1.5 of the DRGSR, we believe that additional assessment of the hydrogeologic conditions at the site is not warranted at this time since the facility will require only limited new construction. If future expansion of the facility requires new construction at the site, the hydrogeological assessment provided here may require supplemental information to determine potential impacts to groundwater.

Exhibit 1

April 21, 2010 DNREC Approval of March 29, 2010 Remedial Action Completion Report

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
DIVISION OF AIR AND WASTE MANAGEMENT
391 LUKENS DRIVE
NEW CASTLE, DELAWARE 19720-2774

WASTE MANAGEMENT SECTION
SITE INVESTIGATION &
RESTORATION BRANCH

TELEPHONE: (302) 395-2600
FAX: (302) 395-2601

April 21, 2010

Junchul Kim, PhD, PE
TetraTech NUS, Inc
240 Continental Drive Suite 200
Newark, DE 19713

RE: Approval for Remediation Completion/Closeout Report for Budd Metal Site (OU-2) (DE-0270) dated March 29, 2010 as the Remedial Action Completion Report

Dear Mr. Kim:

The Delaware Department of Natural Resources and Environmental Control, Site Investigation and Restoration Branch has reviewed the above referenced document and has approved the above reference document. The Remediation Completion/Closeout Report meets the requirements for a Remedial Action Completion Report and it is consistent with the Final Plan of Remedial Action (FPRA) 1996 for the Budd Metal site.

If you have any questions or comments please contact me at (302)-395-2600.

Regards,

Todd Keyser
Project Manager

TAK:vdc
TAK10012.doc
DE 0270 II D 3

pc: Paul Will, DNREC-SIRB
Bill Ganc, White Realty Associates
Joe Matteo, DPH, LLC
Nicholas Ferrara, Jr., Greggo and Ferrara, Inc.

Excerpts from March 29, 2010 Remediation Completion Closeout Report for the BUDD Metal Site (DE-0270) - Operable Unit 2

TETRA TECH

March 29, 2010
112C02355

Mr. Todd A. Keyser
State of Delaware
Department of Natural Resources and Environmental Control
Division of Air and Waste Management
Site Restoration and Investigation Branch
391 Lukens Drive
New Castle, DE 19720-2774

SUBJECT: REMEDIATION COMPLETION/CLOSEOUT REPORT FOR THE BUDD METAL SITE (DE-0270) – OPERABLE UNIT 2

Dear Mr. Keyser:

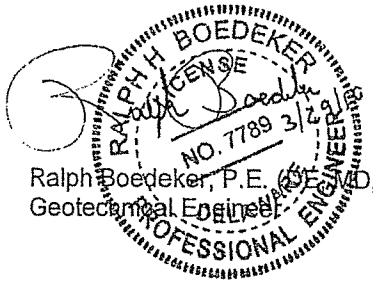
Tetra Tech NUS is pleased to submit the Remediation Completion/Closeout Report for the West Parcel of the Budd Metal Site (DE-0270) to the Delaware Department of Natural Resources and Environmental Control – Site Investigation and Restoration Branch (DNREC-SIRB). This report is submitted in partial fulfillment of the requirements for DPH, LLC to obtain the Certificate of Completion of Remedy (COCR), and to certify that the remedial action at the subject site has been completed, as prescribed in the Final Plan of Remedial Action (FPRA) and/or other approved Hazardous Substance Cleanup Act (HSCA) agreement.

In accordance with the revised remedial action work plan dated November 2, 2009, post-remedial action groundwater sampling will be conducted on a quarterly basis for a period of two years. A quarterly report will be submitted to DNREC-SIRB.

Should you have any questions, please contact me at (302) 283-2235 (office) or (484) 639-3966 (cell).

Sincerely,

Junchul Kim, Ph.D., P.E.
Project Manager



Ralph Boedeker, P.E. (DE, MD, PA, and VA)
Geotechnical Engineer

jp

c: Joe Matteo, DPH, LLC
Bill Ganc, White Realty Associates
Nicholas Ferrara, Jr., Greggo and Ferrara, Inc.

K:\112C02355 - Budd Metal RA - JC Kim\Documents\Remedial Action\Closure report\Text\Cover letter.doc

Tetra Tech NUS, Inc.
240 Continental Drive, Suite 200, Newark, DE 19713
Tel 302-738-7551 Fax 302-454-5988 www.tetratech.com

from MW-4 and MW-5; therefore, groundwater near MW-6 may receive lead from groundwater migrating from the vicinity of MW-2 and/or soils in the vicinity of MW-6 (Grid J).

3.0 OVERVIEW OF REMEDIAL ACTIONS

DNREC-SIRB determined that attainment of the URS would be a generic conservative approach to the protection of human health and the environment at OU-2 of the site; therefore, this approach was used to define the scope of remedial actions for OU-2. The general scope of remedial actions was site-wide remediation of soils with lead concentrations that exceed the URS values (i.e., 1,000 mg/kg).

3.1 Remedial Action Objectives

The final RAWP (April 29, 2009) called for the following remedial action objectives (RAOs) for OU-2. The general response actions (GRAs) for RAOs are also discussed briefly.

- Prevent further migration of contaminants in soils to groundwater - Soils containing lead at concentrations greater than 1,000 mg/kg were stabilized to minimize mobility of lead by demonstrating that the soil would pass the Toxicity Characteristic Leaching Procedure (TCLP) leachate limit of lead (5 mg/L) in accordance with the Resource Recovery and Conservation Act (RCRA).

- Eliminate current exposure of human and ecological receptors to contaminated soils – Human health and ecological risks posed by lead-bearing soil were to be minimized by implementing capping at the site. Capping can provide a reduction of surface water infiltration (in case of using an impermeable cover), improve aesthetics, provide a stable surface, and prevent human exposure from direct contact.

- Monitor groundwater quality in the area to the extent practicable within a reasonable time frame, given the circumstance of the site – DNREC-SIRB established a groundwater management zone (GMZ) for groundwater in the area, encompassing the site. Should the level of total petroleum hydrocarbons (TPH) in groundwater in the vicinity of the service garage (located in the East Parcel of the site) exceed 10 mg/L following two successive monitoring years, DNREC may require remediation for groundwater.

3.2 Overview of Final Remedial Action Work Plan

The RAWP outlined the specific response action items that need to be implemented to accomplish the RAOs for OU-2. This section summarizes the scope of work specified in the RAWP.

3.2.1 Soil

Area or Volume Addressed

The OU-2 area that needed to be addressed for lead-bearing soil was approximately 4 acres. Paved areas or areas under the existing structures would not be addressed for remedial action. The general vertical limit of remedial action is 3 feet.

Remedial Action Technology

In-situ stabilization was the selected remedial action technology, which uses a triple phosphate stabilizer to bind lead onto soil. It was anticipated that approximately 500 tons per day of soil could be treated. The treatment of soil begins with spraying the stabilizer on the top surface of the lead-bearing soil, resulting in stabilization of the top 6" (or more) of soil. Once the spray treatment has been completed, the treated (stabilized) soil is excavated with a backhoe and temporally stockpiled.

This procedure is repeated until the target treatment depth (3 feet or top of water table) has been achieved. After treatment of soil up to the target depth is accomplished, composite samples are collected from treated soil stockpiles; the excavated cells remain open. Upon receiving satisfactory test results (i.e., TCLP lead < 5 mg/L), treated soil stockpile(s) is backfilled.

Confirmatory Sampling

According to the RAWP, one composite soil sample per daily batch of stabilized soil (i.e., 1 sample/500 tons) would be collected and analyzed for TCLP lead to assess the effectiveness of the remedy. Sampling of soil beneath existing paved areas would also be performed at the excavation sidewalls as the pavement perimeter became exposed, to determine the limits of requisite stabilization. During remedial activities, periodic ambient air and dust monitoring would also be performed as specified in a site-specific health and safety plan (HASP).

Capping

Upon completion of soil stabilization, a surface layer of aggregate material (e.g., crushed concrete) and/or asphalt paving would be placed over the surface throughout OU2 and, if necessary, the surface re-graded to improve site drainage.

3.2.2 Groundwater

The remedy for groundwater in OU-2 was determined to be No Action. Since the source (i.e., lead-bearing soil) of contamination in groundwater is fully addressed by soil remedy, the potential route of contamination in groundwater would be eliminated. In addition, no drinking water wells were identified near the site; therefore, risks to human health and the environment related to exposure to groundwater are minimal. However, since the site is located within GMZ, long-term groundwater monitoring will be implemented once the RA for soil is completed.

4.0 IMPLEMENTATION OF FINAL REMEDIAL ACTION

This section describes the field activities performed during the RA. The RA commenced in August 2009 and was fully implemented in November 2009.

Site Clearing and Preparation

OU-2 has an active tire recycling facility. As such, large quantities of used whole tires and shredded tires were stockpiled throughout the area. Therefore, prior to commencement of field activities, the stockpiled tire chips had to be moved or shipped off-site to gain access to contaminated soil. The site owner was responsible for clearing these stockpiles during the RA, and provided earth-moving equipment and labor.

The site-specific HASP was prepared to ensure safety of site workers during field activities. The HASP was prepared in accordance with the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). The HASP discusses task-specific hazard analyses, air monitoring for personnel safety, personal protective equipment recommendations, site controls, equipment and personnel decontamination, medical monitoring and training requirements, and emergency response procedures. All field activities were conducted in accordance with approved HASP.

In compliance with the approved HASP, exclusion and contamination reduction zones were established prior to commencement of any site activities. Orange construction fencing was placed around the exclusion zone, and copies of the site control plan were posted on-site to prevent unauthorized access to contaminated areas. In addition, silt fence and straw bales were staked into place to prevent soil erosion and surface runoff from leaving the site. Moreover, continuous dust and ambient air monitoring was conducted during all intrusive site activities. All site control and decontamination procedures were inspected by the Tetra Tech health and safety officer; found in compliance with regulatory requirements.

Total Area and Volume of Contaminated Soil Addressed

The total treated area containing lead contaminated soils was approximately 4.4 acres. Subsurface soils under pavement and existing structures were not addressed during the RA since these features act as a physical barrier between contaminated soil and the work zone, thus minimizing human exposure to potential lead contamination.

Remedial activities commenced in the northern portion of OU-2 and progressed in a southern direction toward the tire recycling operation building (a.k.a. fabrication division metal warehouse). As shown in an "as-built" drawing (**Figure 5**), the entire OU-2 was divided into 64 "cells" to establish a more manageable approach for in-situ treatment. Each cell was small enough to allow the completion of excavation, treatment, and backfilling during an 8-hour work day. However, depending on work progress and their sizes, some cells were further subdivided into two cells, either horizontally (A/B) or vertically (S/D). The soil treatment process was carried out according to the procedure

described in Section 3.2.1. After direct application of stabilizer to the lead-bearing soil surface, the treated area was hydrated to promote the absorption of stabilizer into the soil matrix. Once fully hydrated, 6 inches of treated soil was excavated from the treatment cell area and stockpiled. The process was repeated until the target depth (3 feet below grade) was achieved. Several locations were not treated to full depth because of the shallow water table.

One composite soil sample per daily volume of stabilized soil was collected and analyzed for TCLP lead to assess the efficacy of the stabilization. A total of 84 composite soil samples were collected. Upon receipt of passing confirmatory laboratory results (i.e., lead in TCLP extract < 5mg/L), the treated cell was backfilled with treated soil. The analytical data are included in **Appendix A.**

Table 1 summarizes the area, depth, and volume of each treatment cell, as well as lead concentrations in TCLP extract of treated soil samples. Collectively, a total of 29,426 tons of lead-bearing soil within 4.4 acres were successfully remediated.

The TCLP extracts for the treated soil samples from cells 6, 17, 32, and 41 did not pass the TCLP lead limit of 5 mg/L. Accordingly, soil samples from these cells were resampled and analyzed for total lead. The analytical results indicated that soil lead levels in these cells were elevated (**Table 2**). Since a stabilizer was formulated based on an average lead concentration throughout OU-2, the first application was not sufficient to stabilize lead in the soil hot-spots. Therefore, these cells were retreated and eventually passed the TCLP lead limit.

Further, test pit samples were collected from cells 32EXT1 and 2 near the tire recycling operation building, and analyzed for total lead since this area appeared to be a hot-spot. The test pit samples from cell 32EXT1 and 2 exhibited total lead concentration greater than 1,000 mg/kg; therefore, soils in this location were excavated, treated, and spread over other treated cells after confirming a TCLP lead test result of less than 5 mg/L.

Two test pit samples were also collected from cell 64 and analyzed for total lead because treatment could not be performed in full depth (up to 1 foot of soil was treated) because of existing underground utility lines. Total lead concentrations in the deep soil of cell 64 were determined to be less than 1,000 mg/kg; therefore, no further treatment was required.

Total lead concentration in the test pit sample from cell 65 located outside the fence line was determined to be less than the URS criteria for lead (1,000 mg/kg); therefore, no treatment was performed.

Table 2 summarizes total lead concentrations in soils under the paved areas or existing structure. A total of 17 perimeter soil samples were collected over the course of the project, as shown on **Figure 6**. All soil samples exhibited total lead concentrations less than the URS criteria for lead; therefore, no remediation was required, as indicated in the RAWP. The analytical data are included in **Appendix A.**

Capping

Upon completion of all soil stabilization on-site, a layer of aggregate material (crushed concrete and/or asphalt paving) was constructed throughout the site. This aggregate layer was created to prevent any future exposure to underlying soils, and to improve site drainage and the future land use.

Well Abandonment

Six groundwater monitoring wells (MW01 through 06) were installed during the 2008 supplemental RI. The RAWP required abandonment of these wells during the RA.

On August 18, 2009, four existing monitoring wells (MW-1, MW-2, MW-4, and MW-5) were abandoned by licensed drillers. Two remaining monitoring wells (MW-3 and MW-6) were not abandoned because they had been covered by large stockpiles of chipped tire rubber. A well abandonment report is included in **Appendix B**.

MW-3 was destroyed while excavating contaminated soils in cell 49. The remaining section of PVC-constructed screen (below the depth of excavation) was left in-place and backfilled over with treated soils.

In January 2010, MW-6 was scheduled to be abandoned by licensed drillers. Upon arriving on-site, it was discovered that MW-6 had been covered with aggregate capping material asphalt cover, making it inaccessible for abandonment.

Summary of Field Notes

Tetra Tech NUS maintained logbooks to record all daily field activities for the duration of the project. The information recorded in the logbooks included, but was not limited to, the weather, on-site personnel and visitors, equipment used, results of continuous dust monitoring, cells being treated, issues in the field, and filed observations.

Below is a summary of noteworthy field observations recorded during on-site activities:

- Railroad rail and rail ties were discovered in the southern portion of OU-2 leading into the southeastern entrance of the tire recycling operation building. The rails were cut up, put into a roll-off container, and taken off-site for disposal and recycling.
- Chain-link fence along the eastern property boundary adjacent to East Parcel (OU-1) was found to be shifted, as shown on the site plan. Consequently, some portion of OU-2 (cell 65) could not be accessed. However, total lead analysis for the test pit sample from this area indicated that soil lead level was much lower than the URS lead criteria; therefore, no treatment was required.
- A suspected concrete encased sanitary sewer line was located near the one-story warehouse located on the western side of the property. The sewer line was left in place.

- An abandoned underground metal septic tank was discovered within the limits of treatment cell 55. The tank was 9 feet long with an outside diameter of 3.5 feet and contained groundwater. After a brief inspection and discussion with DNREC-SIRB, it was removed and shipped off-site for recycling.
- An abandoned gas line was discovered running from east to west toward the office building. The line was found to be inactive and therefore removed.
- A 6-inch cast iron sewer pipe was damaged by the excavation within the limits of treatment cell 64. The pipe was repaired.

No other major issues were noted during the implementation of remedial action. Pictures taken during the RA are included in **Appendix C**.

5.0 SUMMARY OF LONG-TERM GROUNDWATER MONITORING PLAN

In January 2010, three long-term groundwater monitoring wells, made of 1.5-inch, pre-pack well screens and polyvinyl chloride (PVC) casing were installed in the East Parcel (**Figure 7**). Boring logs and well completion reports are included in **Appendix D**.

As per revised RAWP dated November 2, 2009, post-remedial groundwater sampling will be conducted on a quarterly basis for a period of two years, as follows:

- The pH, dissolved oxygen (DO), temperature, and conductivity in groundwater will be measured before and after sampling.
- Groundwater samples will be analyzed for TPH by the State of Delaware Hazardous Substance Cleanup Act (HSCA)-certified laboratory using EPA Method 8015B for diesel range organics (TPH-DRO) and gasoline range organics (TPH-GRO).
- If the sampling results indicate that groundwater at the site is relatively clean (e.g., TPH <10 mg/L), groundwater monitoring will be discontinued, and the wells will be abandoned by a Delaware-licensed well driller.
- Should the level of TPH in groundwater in the East Parcel of the site exceed 10 mg/L following two successive monitoring years, DNREC-SIRB may require remediation of groundwater.

Appendix B

Well Abandonment Reports

DIRECT PUSH SERVICES
GSI
GREEN SERVICES, INC.
www.greenservices.net

August 20, 2009

Tetra Tech
Jason Daliessio
240 Continental Dr, Ste. 200
Newark, DE 19713

Attached are the **owner** copies of well abandonment reports for the 4 wells abandoned at the Magnus /Budd Metals Site in Wilmington, Delaware. Wells were abandoned on August 19, 2009. Originals have been submitted to the appropriate state agency.

Please forward owner copies to the appropriate parties or include in your report to them.

Should you have any questions contact Green Services, Inc. at 410-569-9310.

Sincerely,
Green Services, Inc.

Kevin M Pumphrey
Kpumphrey@Greenservices.net

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL or SOIL BORING ABANDONMENT REPORT

http://www.dnrec.state.de.us/

WELL ABANDONMENT REPORT MUST BE RETURNED WITHIN 30 DAYS OF ABANDONMENT.

- OFFICIAL USE ONLY -

PAGE _____ OF _____ PAGES

PERMIT #: _____

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE TYPE OR PRINT - USE BLUE OR BLACK INK ONLY

Permit # of Abandoned Well: 225354

Replacement Well Permit #: N/A

Local ID: MW-1 Tax Map/Parcel #: 10.001.00-047

Property Owner: HEAD ST LLC

Well Contractor: GREEN SVCS Lic. #: 4286

Well Driller in Charge: K Pumphrey Lic #: 4285

Construction Date of Abandoned Well/Soil Boring: 9/23/08

Well Type: MONITORING

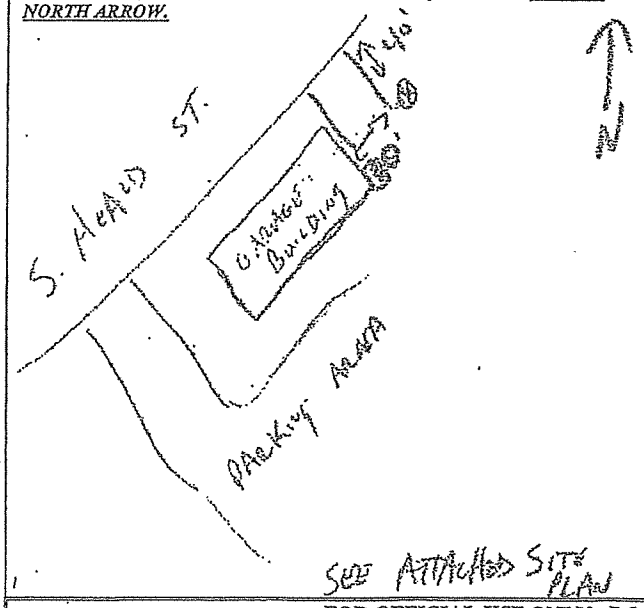
Abandonment Date: 8/19/09

WELL CONSTRUCTION METHOD (if known):

☐ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☒ Other (Specify): GEOPROBE / DIRECT-PUSH

PROVIDE A LOCATION SKETCH OF ABANDONED WELL(S)

Draw a sketch below showing location of well in relation to at least two county or state roads, give distance from site to nearest road junction and *SHOW A NORTH ARROW.*



WELL ABANDONMENT:

Casing Material: PVC

Casing Diameter (inches): 1.5

Well Depth: 10'

Was any Casing Removed? ☐ NO ☒ YES

If YES, Amount of Casing Removed (feet): 10'

Was Casing Ripped or Perforated? ☐ NO ☐ YES

Type of Sealing Material Used: Cement/bent. grout

Sealed From: 0 ft. To: 10 ft.

NOTE: If this form is submitted in place of a completion report for wells or soil borings installed and abandoned on the same date, a formation log must be attached. Formation logs must be submitted on forms provided by DNREC.

The abandonment of this well(s) or soil boring(s) is in compliance with all permit conditions and with all applicable well construction regulations.

☒ YES ☐ NO

COMMENTS: ALL CASING (RISER) & SCREEN REMOVED.

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

K. M Pumphrey
Signature - Licensed Driller in Charge of Abandonment

4285 — Well Driller License #

8/20/09 — Date

- FOR OFFICIAL USE ONLY - DO NOT WRITE BELOW THIS LINE -

Received By: _____ Modified Grid: _____ DRBC: ☐ YES ☐ NO X-Coord: _____

Amount: _____ Drainage Basin: _____ H_2O Utility: _____ Y-Coord: _____

Date: _____ Quad: _____ Flood Zone/Coastal: _____ DOT #: _____

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/87/02/03

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

WELL or SOIL BORING ABANDONMENT REPORT

http://www.dnrec.state.de.us/

WELL ABANDONMENT REPORT MUST BE RETURNED WITHIN 30 DAYS OF ABANDONMENT.

- OFFICIAL USE ONLY -

PAGE _____ OF _____ PAGES

PERMIT #: _____

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE TYPE OR PRINT - USE BLUE OR BLACK INK ONLY

Permit # of Abandoned Well: 225355

Replacement Well Permit #: NA

Local ID: MW-2 Tax Map/Parcel #: 10.001.00-047

Property Owner: HEALD STREET LLC

Well Contractor: GREEN, Sucs Lic. #: 4286

Well Driller in Charge: K Humphrey Lic #: 4285

Construction Date of Abandoned Well/Soil Boring: 9/23/08

Well Type: MONITORING

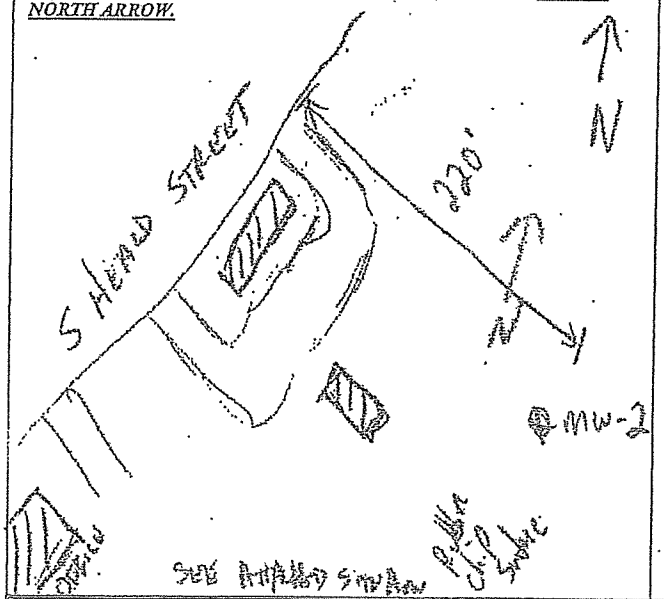
Abandonment Date: 8/19/09

WELL CONSTRUCTION METHOD (if known):

☐ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☑ Other (Specify): GEOPROBE / DIRECT - PUSH

PROVIDE A LOCATION SKETCH OF ABANDONED WELL(S)

Draw a sketch below showing location of well in relation to at least two county or state roads, give distance from site to nearest road junction and *SHOW A NORTH ARROW.*



WELL ABANDONMENT:

Casing Material: PVC

Casing Diameter (inches): 1.5"

Well Depth: 10'

Was any Casing Removed? ☐ NO ☑ YES

If YES, Amount of Casing Removed (feet): 5'

Was Casing Ripped or Perforated? ☑ NO ☐ YES

Type of Sealing Material Used: Cement / bent. grout

Sealed From: 0 ft. To: 10 ft.

NOTE: If this form is submitted in place of a completion report for wells or soil borings installed and abandoned on the same date, a formation log must be attached. Formation logs must be submitted on forms provided by DNREC.

The abandonment of this well(s) or soil boring(s) is in compliance with all permit conditions and with all applicable well construction regulations.

☑ YES ☐ NO

COMMENTS: ALL Riser/Casing Removed. 5' of Screen grouted in place

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

K. M Humphrey
Signature - Licensed Driller in Charge of Abandonment

4285 8/20/09
Well Driller License # Date

- FOR OFFICIAL USE ONLY - DO NOT WRITE BELOW THIS LINE -

Received By: _____ Modified Grid: _____ DRBC: ☐ YES ☐ NO X-Coord: _____

Amount: _____ Drainage Basin: _____ H_2O Utility: _____ Y-Coord: _____

Date: _____ Quad: _____ Flood Zone/Coastal: _____ DOT #: _____

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/87/02/03

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL or SOIL BORING ABANDONMENT REPORT

http://www.dnrec.state.de.us/

WELL ABANDONMENT REPORT MUST BE RETURNED WITHIN 30 DAYS OF ABANDONMENT.

- OFFICIAL USE ONLY -

PAGE _____ OF _____ PAGES

PERMIT #: _____

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE TYPE OR PRINT - USE BLUE OR BLACK INK ONLY

Permit # of Abandoned Well: 225357

Replacement Well Permit #: NA

Local ID: MW-4 Tax Map/Parcel #: 10.001.00-047

Property Owner: HEROLD STREET LLC

Well Contractor: GREEN SVCS Lic. #: 4286

Well Driller in Charge: K. MURPHREY Lic #: 4285

Construction Date of Abandoned Well/Soil Boring: 9/23/08

Well Type: MONITORING

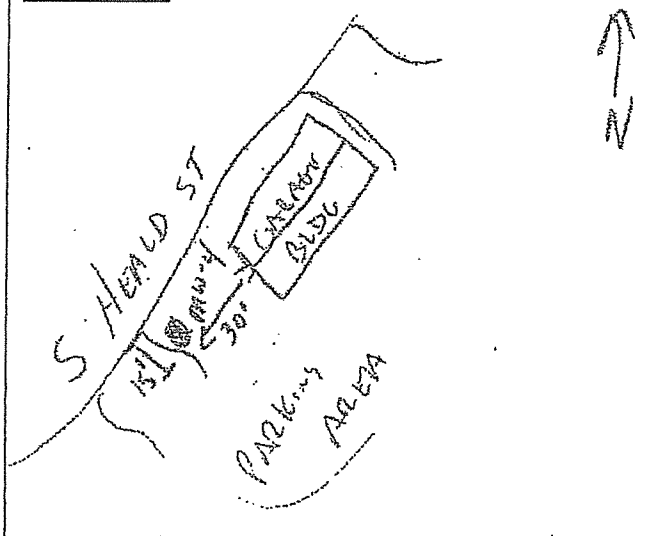
Abandonment Date: 8/19/09

WELL CONSTRUCTION METHOD (if known):

☐ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☒ Other (Specify): GEOPROBE / DIRECT-PUSH

PROVIDE A LOCATION SKETCH OF ABANDONED WELL(S)

Draw a sketch below showing location of well in relation to at least two county or state roads, give distance from site to nearest road junction and *SHOW A NORTH ARROW.*



SEE ATTACHED SITE PLAN

WELL ABANDONMENT:

Casing Material: PVC

Casing Diameter (inches): 1.5"

Well Depth: 10'

Was any Casing Removed? ☐ NO ☒ YES

If YES, Amount of Casing Removed (feet): 5'

Was Casing Ripped or Perforated? ☒ NO ☐ YES

Type of Sealing Material Used: Cement/bent grout

Sealed From: 0 ft. To: 10 ft.

NOTE: If this form is submitted in place of a completion report for wells or soil borings installed and abandoned on the same date, a formation log must be attached. Formation logs must be submitted on forms provided by DNREC.

The abandonment of this well(s) or soil boring(s) is in compliance with all permit conditions and with all applicable well construction regulations.

☒ YES ☐ NO

COMMENTS: ALL CASING (5') REMOVED
5' SCREEN GROUTED IN PLACE

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

K. M. Murphrey
Signature - Licensed Driller in Charge of Abandonment

4285 8/20/09
Well Driller License # Date

- FOR OFFICIAL USE ONLY - DO NOT WRITE BELOW THIS LINE -

Received By: _____ Modified Grid: _____ DRBC: ☐ YES ☐ NO X-Coord: _____

Amount: _____ Drainage Basin: _____ H_2O Utility: _____ Y-Coord: _____

Date: _____ Quad: _____ Flood Zone/Coastal: _____ DOT #: _____

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/87/02/03

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL or SOIL BORING ABANDONMENT REPORT

http://www.dnrec.state.de.us/

WELL ABANDONMENT REPORT MUST BE RETURNED WITHIN 30 DAYS OF ABANDONMENT.

- OFFICIAL USE ONLY -
PAGE _____ OF _____ PAGES
PERMIT #: _____

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE TYPE OR PRINT - USE BLUE OR BLACK INK ONLY

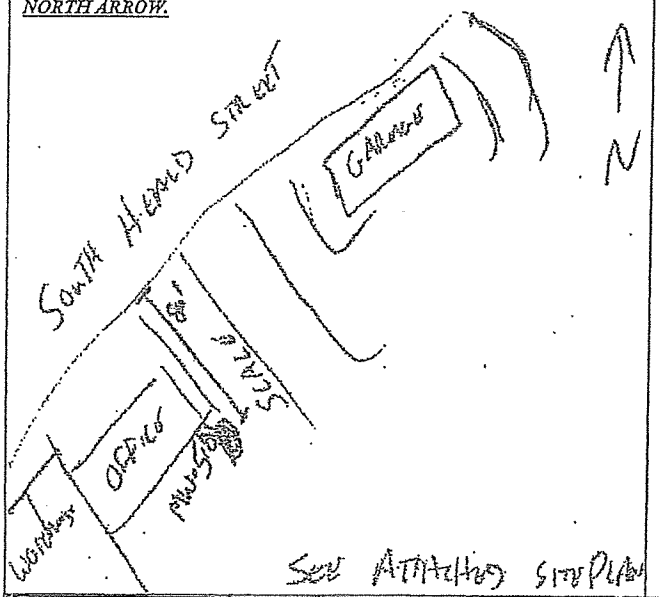
Permit # of Abandoned Well: 225358
Replacement Well Permit #: N/A
Local ID: MW-5 Tax Map/Parcel #: 10.001.00-047

Property Owner: HEALD ST LLC
Well Contractor: GREEN SVCS Lic. #: 4286
Well Driller in Charge: K Pumphrey Lic #: 4285
Construction Date of Abandoned Well/Soil Boring: 9/23/08
Well Type: MONITORING
Abandonment Date: 8/19/09

WELL CONSTRUCTION METHOD (if known):

☐ Augered ☐ Bored ☐ Cable Tool
☐ Driven ☐ Jetted ☐ Air Rotary
☐ Mud Rotary ☐ Reverse ☐ Washed
☒ Other (Specify): GEOPROBE / DIRECT-PUSH

PROVIDE A LOCATION SKETCH OF ABANDONED WELL(S)
Draw a sketch below showing location of well in relation to at least two county or state roads, give distance from site to nearest road junction and *SHOW A NORTH ARROW.*



See Attached Site Plan

WELL ABANDONMENT:

Casing Material: 1" PVC
Casing Diameter (inches): 1.5"
Well Depth: 10'
Was any Casing Removed? ☐ NO ☒ YES
If YES, Amount of Casing Removed (feet): 10
Was Casing Ripped or Perforated? ☒ NO ☐ YES
Type of Sealing Material Used: Cement / bentonite grout
Sealed From: 0 ft. To: 10 ft.

NOTE: If this form is submitted in place of a completion report for wells or soil borings installed and abandoned on the same date, a formation log must be attached. Formation logs must be submitted on forms provided by DNREC.

The abandonment of this well(s) or soil boring(s) is in compliance with all permit conditions and with all applicable well construction regulations.

☒ YES ☐ NO

COMMENTS: All Casing & Screen Removed

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

K. M Pumphrey
Signature - Licensed Driller in Charge of Abandonment

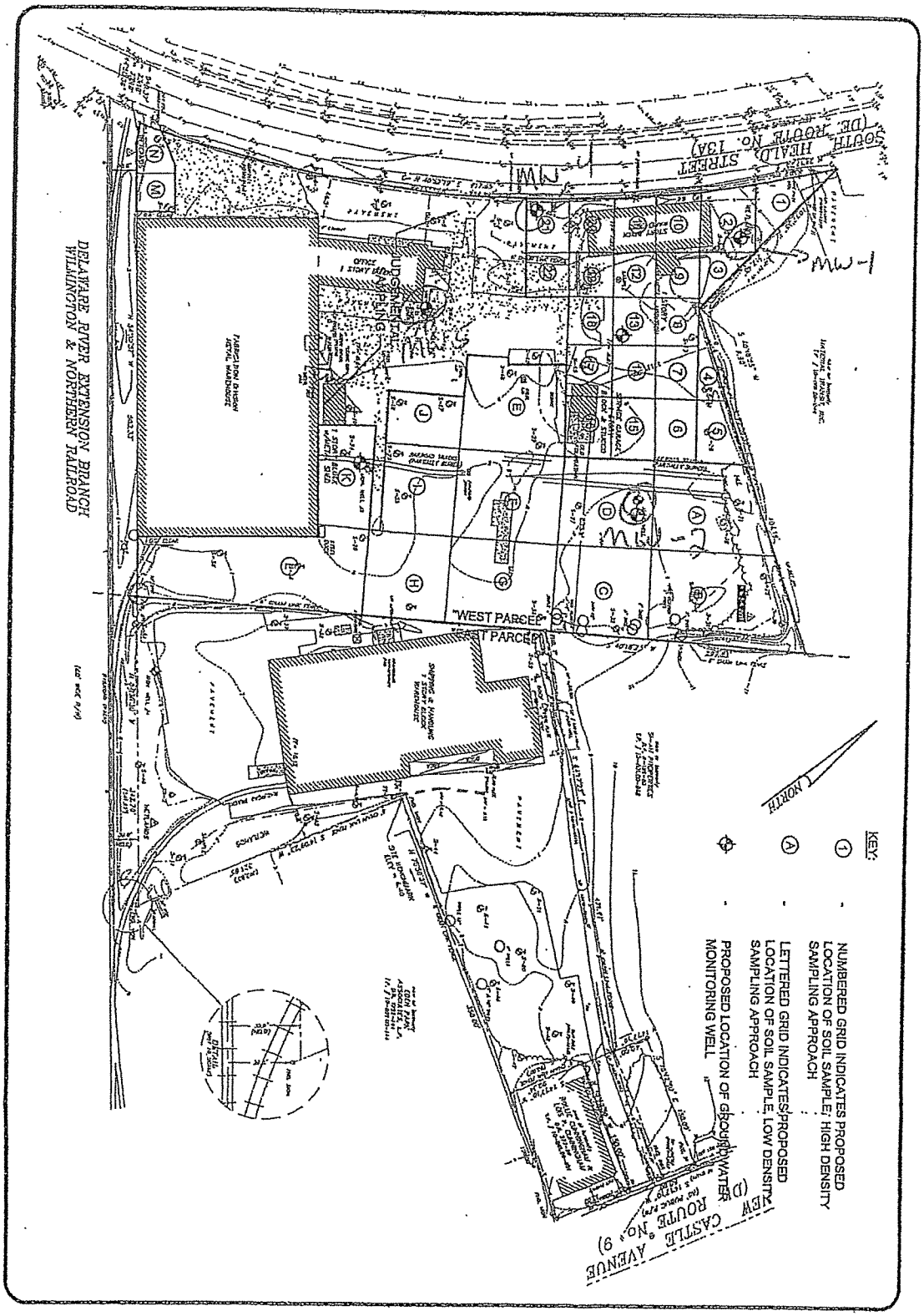
4285 — Well Driller License #
8/20/09 — Date

- FOR OFFICIAL USE ONLY - DO NOT WRITE BELOW THIS LINE -

Received By: _____ Modified Grid: _____ DRBC: ☐ YES ☐ NO X-Coord: _____
Amount: _____ Drainage Basin: _____ H_2O Utility: _____ Y-Coord: _____
Date: _____ Quad: _____ Flood Zone/Coastal: _____ DOT #: _____

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/87/02/03



STRATIFIED SYSTEMATIC SAMPLING PLAN	DESIGNED BY: JLG	
BUDD METAL / WEST PARCEL	DRAWN BY: SSJ	
	CHECKED BY: JLG	
NEW CASTLE HUNDRED – NEW CASTLE COUNTY – DELAWARE	FILE: B-1451EU-01	

Appendix D

Well Completion Reports/Boring Logs

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

-Authorization Number-

#

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit #: 230230 Local ID: MW-1

Tax Map/Parcel #: 10-001.00-052

Property Owner: Isabel B Walther

Water Well Contractor: Green Sves Inc WC Lic #: 4286

Well Driller in Charge during Construction: K Purnell

WELL CONSTRUCTION METHOD

o Augered o Bored o Cable Tool
o Driven o Jetted o Air Rotary
o Mud Rotary o Reverse o Washed
o Other (Specify): Geoprobe Direct Push

Total Depth of Excavation: 10

Construction Date: 1/6/10

CASING INSTALLATION:

	INNER CASING
CASING TOP:	0
CASING BOTTOM:	5'
CASING DIAMETER:	1"
CASING MATERIAL:	PVC

OUTER CASING

	(1)	(2)	(3)
CASING TOP:			
CASING BOTTOM:			
CASING DIAMETER:			
CASING MATERIAL:			

SCREEN INSTALLATION

SCREEN TOP:	5'
SCREEN BOTTOM:	10'
SCREEN DIAMETER:	1"
SCREEN MATERIAL:	PVC

Direct Push Screen

SCREEN SLOT SIZE 10 /THOUSANDS

GRAVEL PACK SIZE #0 in pre-pack

2" Annular Space

Gravel Pack From: 10 ft. To: 3.5' ft.

Grout Type: o Cement o Bentonite Clay

o Other: From: 3.5 ft. To: .5 ft.

Type of Non-Grout backfill of Well Annulus: NA

From: To:

Static Water Level: 6 ft. o Below OR o Above Ground Surface

On (date): 1/6/10

Pumping Water Level: Dry ft. On (date):

After: hrs. Pumping at: GPM

Was a Geophysical Log Taken? o YES o NO

WELL HEAD COMPLETION:

Type: o Pitless Adapter o Standard
o Well Pit o Pad Mount
o Other - Specify: Flush mount Roadbox

Well Head Completed: 6 inches o Above (OR) o Below Ground Surface

Was the Well Tag attached in accordance with current regulations?

o YES o NO If "NO", Please Explain:

Site Plan – Include lot size and dimensions, distances from well to house, property lines, nearest road, and all nearby septic systems (include suitable plot plan if available). (If different from original application)

Attached

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

Signature - Well Driller In Charge of Well Construction

4285 License #

2/4/10 Date

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/78/01/03 - EC 7

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-9944
FAX:302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

FORMATION LOG

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

PAGE_____ OF_____ PAGES

PLEASE PRINT OR TYPE – ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT #: 230230	LOCAL ID#: MW-1
PROPERTY OWNER: Joseph B Walther	
WELL CONTRACTOR: Klein Services Inc.	WC LIC #: 4286

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
Asphalt / Gravel	0	0.5'
Brown Silty Fill	0.5	2'
Brown Sand	2'	4'
Tan Sand	4'	10'
Wet @ 6' BGS		

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

Signature of Well Driller in Charge of Construction | WD License # 4285 | Date 2/4/10

White - DNREC • Canary - CONTRACTOR • Pink - Owner

Doc No. 40-08-82-12-11

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

-Authorization Number-

#

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit #: 230231 Local ID: MW-2

Tax Map/Parcel #: 10.MN1.00-050

Property Owner: Joseph B Walthee

Water Well Contractor: Green Sites Inc WC Lic #: 4286

Well Driller in Charge during Construction: K Pumphrey

WELL CONSTRUCTION METHOD

o Augered o Bored o Cable Tool
o Driven o Jetted o Air Rotary
o Mud Rotary o Reverse o Washed
o Other (Specify): Geoprobe Direct Push

Total Depth of Excavation: 10

Construction Date: 1/6/10

CASING INSTALLATION:

INNER CASING

CASING TOP: .5'
CASING BOTTOM: 4'
CASING DIAMETER: 1"
CASING MATERIAL: PVC

OUTER CASING

	(1)	(2)	(3)
CASING TOP:			
CASING BOTTOM:			
CASING DIAMETER:			
CASING MATERIAL:			

SCREEN INSTALLATION

SCREEN TOP: 4' prepack screen
SCREEN BOTTOM: 9'
SCREEN DIAMETER: 1"
SCREEN MATERIAL: PVC

SCREEN SLOT SIZE: 10 /THOUSANDS

GRAVEL PACK SIZE: 0 in prepack
2 in annulus

Gravel Pack From: 10 ft. To: 3' ft.

Grout Type: ____ o Cement ✓ o Bentonite Clay

o Other: ____ From: 3' ft. To: .5 ft.

Type of Non-Grout backfill of Well Annulus: N/A

From: ____ To: ____

Static Water Level: 3 ft. ✓ Below OR o Above Ground Surface

On (date): 1/16/10

Pumping Water Level: N/A ft. On (date): ____

After: ____ hrs. Pumping at: ____ GPM

Was a Geophysical Log Taken? o YES ✓ NO

WELL HEAD COMPLETION:

Type: o Pitless Adapter o Standard "T"
o Well Pit o Pad Mount
o Other - Specify: Flush Mount Road Box

Well Head Completed: 6 inches o Above (OR) ✓ Below Ground Surface

Was the Well Tag attached in accordance with current regulations?

✓ YES o NO If "NO", Please Explain: ____

Site Plan – Include lot size and dimensions, distances from well to house, property lines, nearest road, and all nearby septic systems (include suitable plot plan if available). (If different from original application)

ATTACHED

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

K M Pumphrey
Signature - Well Driller In Charge of Well Construction

6285 — License #

2/4/10 — Date

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/78/01/03 - EC 7

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-9944
FAX:302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

FORMATION LOG

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

PAGE_____ OF_____ PAGES

PLEASE PRINT OR TYPE – ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT #: 230232 | LOCAL ID#: MW-2

PROPERTY OWNER: Joseph B. Walther

WELL CONTRACTOR: Green Services Inc. | WC LIC #: 4286

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
Asphalt + gravel	0	1
Brown Silty Fill	1	3
Tan Fine Sand	3	10
wet @ 4'-5'		

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

Signature of Well Driller in Charge of Construction | WD License # 4285 | Date 1/4/10

White - DNREC • Canary - CONTRACTOR • Pink - Owner

Doc No. 40-08-82-12-11

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: 302-739-9944
FAX: 302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL

WELL COMPLETION REPORT

http://www.dnrec.state.de.us/

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION. A WELL FORMATION LOG MUST BE INCLUDED WITH THIS REPORT.

-Authorization Number-

#

ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PLEASE PRINT OR TYPE - USE BLUE OR BLACK INK ONLY

Permit #: 230232 Local ID: MW-3

Tax Map/Parcel #: 10.001.00-050

Property Owner: Joseph B Walther

Water Well Contractor: Green Sves Inc WC Lic #: 1286

Well Driller in Charge during Construction: K Pumphrey

WELL CONSTRUCTION METHOD

o Augered o Bored o Cable Tool
o Driven o Jetted o Air Rotary
o Mud Rotary o Reverse o Washed
o Other (Specify): Geoprobe Direct Push

Total Depth of Excavation: 10

Construction Date: 1/6/10

CASING INSTALLATION:

INNER CASING

CASING TOP: 5'
CASING BOTTOM: 4'
CASING DIAMETER: 1"
CASING MATERIAL: PVC

OUTER CASING

	(1)	(2)	(3)
CASING TOP:			
CASING BOTTOM:			
CASING DIAMETER:			
CASING MATERIAL:			

SCREEN INSTALLATION

SCREEN TOP: 4'
SCREEN BOTTOM: 9'
SCREEN DIAMETER: 1"
SCREEN MATERIAL: PVC

Pre pack screen

SCREEN SLOT SIZE 10 /THOUSANDS

GRAVEL PACK SIZE 0 in pre pack
2" in annulus

Gravel Pack From: 10 ft. To: 3' ft.

Grout Type: _____ o Cement _____ o Bentonite Clay

o Other: _____ From: 3 ft. To: .5 ft.

Type of Non-Grout backfill of Well Annulus: NA

From: _____ To: _____

Static Water Level: 4 ft. o Below OR o Above Ground Surface

On (date): 1/6/10

Pumping Water Level: NA ft. On (date): _____

After: _____ hrs. Pumping at: _____ GPM

Was a Geophysical Log Taken? o YES o NO

WELL HEAD COMPLETION:

Type: o Pitless Adapter o Standard "T"
o Well Pit o Pad Mount
o Other - Specify: Flush Road Box

Well Head Completed: 6 inches o Above (OR) o Below Ground Surface

Was the Well Tag attached in accordance with current regulations?

o YES o NO If "NO", Please Explain: _____

Site Plan – Include lot size and dimensions, distances from well to house, property lines, nearest road, and all nearby septic systems (include suitable plot plan if available). (If different from original application)

See Attached

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT.

K M Pumphrey
Signature - Well Driller In Charge of Well Construction

1285 2/4/10
License # / Date

White - DNREC • Canary - Contractor • Pink - Owner

Doc No. 40-08/78/01/03 - EC 7

MAIL TO:

WATER SUPPLY SECTION
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901
PHONE: 302-739-9944
FAX:302-739-7764

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
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FORMATION LOG

WELL COMPLETION REPORT MUST BE RETURNED WITHIN 30 DAYS OF CONSTRUCTION DATE

PAGE_____ OF_____ PAGES

PLEASE PRINT OR TYPE – ILLEGIBLE OR INCOMPLETE FORMS WILL BE RETURNED

PERMIT #: 230232 | LOCAL ID#: MW-3

PROPERTY OWNER: Tosch B Walther

WELL CONTRACTOR: Green Sws Inc. | WC LIC #: 4286

DESCRIPTION	TOP OF STRATA	BOTTOM OF STRATA
Gravel	0	1
Brown Fill	1	3
Tan Fine Sand	3	10
Wet @ 3'		

COMMENTS:

I HEREBY AFFIRM THE INFORMATION I HAVE SUBMITTED IS ACCURATE AND CORRECT

Signature of Well Driller in Charge of Construction | WD License # 4285 | Date 1/4/10

White - DNREC • Canary - CONTRACTOR • Pink - Owner

Doc No. 40-08-82-12-11

TETRA TECH INC. - GEOPROBE BORING LOG

Project Name: Budd Metal			Project No.: 112C02355
Project Location: Wilmington, Delaware			
Test Boring No.: MW-1	Date(s) Drilled: 1/6/10		Inspector: J. Daliessio
Drilling Contractor: Green Services, Inc.	Drilling Method: Direct Push		Driller: Kevin Pumphrey
Surface Elevation (ft): 8	Groundwater Depth (ft): 6.5		Total Depth (ft): 10

Sample		Sample Depth (ft)		Recovery (inches)	PID readings		Strata Depth (ft)		Description of Materials	Moisture	Blow Counts			
Time	No.	From	To		Depth (ft)	PPM	From	To			0-6"	6-12"	12-18"	18-24"
							0.0	4.0	Fill Material (Brick, Crushed stone)	D				
							4.0	4.5	Light brown, soft, Sandy Clay with fill material	M				
							4.5	5.0	Black to gray, very stiff, mottled, Silty Clay	M				
							5.0	6.5	Orange/gray, mottled, soft to medium stiff, Sandy Clay	M				
							6.5	10.0	Gray to orange, very soft, Silty Fine Grained Sand	W				

Notes and comments:

Well Constructed: 0' - 5' solid casing, 5' - 10' 0.010 screen

Prepacked Screen, 1" ID, Gravel Pack (#2 Morie Sand) 4' - 10', Bentonite Grout 0.5' - 4', Flush Mount Surface Casing

Moisture codes: D-dry, M-moist, W-wet, S-saturated

TETRA TECH INC. - GEOPROBE BORING LOG

Project Name: Budd Metal			Project No.: 112C02355
Project Location: Wilmington, Delaware			
Test Boring No.: MW-2	Date(s) Drilled: 1/6/10		Inspector: J. Daliessio
Drilling Contractor: Green Services, Inc.	Drilling Method: Direct Push		Driller: Kevin Pumphrey
Surface Elevation (ft): 8	Groundwater Depth (ft): 4', 8'		Total Depth (ft): 10

Sample		Sample Depth (ft)		Recovery (inches)	PID readings		Strata Depth (ft)		Description of Materials	Moisture	Blow Counts			
Time	No.	From	To		Depth (ft)	PPM	From	To			0-6"	6-12"	12-18"	18-24"
							0.0	0.5	Black Asphalt	D				
							0.5	1.5	Olive Sandy Clay with Fill Material	M				
							1.5	4.0	Dark brown to orange, stiff, Sandy Clay	W				
							4.0	5.5	Orange, medium stiff, Sandy Clay	W				
							4.0	5.5	Olive , stiff, Clay	M				
							6.5	10.0	Olive to orange, loose, fine to medium grained Sand	W				

Notes and comments:

Well Constructed: 0' - 4' solid casing, 4' - 9' 0.010 screen

Prepacked Screen, 1" ID, Gravel Pack (#2 Morie Sand) 3' - 10', Bentonite Grout 0.5' - 3', Flush Mount Surface Casing

Moisture codes: D-dry, M-moist, W-wet, S-saturated

TETRA TECH INC. - GEOPROBE BORING LOG

Project Name: Budd Metal			Project No.: 112C02355
Project Location: Wilmington, Delaware			
Test Boring No.: MW-3	Date(s) Drilled: 1/6/10		Inspector: J. Daliessio
Drilling Contractor: Green Services, Inc.	Drilling Method: Direct Push		Driller: Kevin Pumphrey
Surface Elevation (ft): 4	Groundwater Depth (ft): 2', 7'		Total Depth (ft): 10

Sample		Sample Depth (ft)		Recovery (inches)	PID readings		Strata Depth (ft)		Description of Materials	Moisture	Blow Counts			
Time	No.	From	To		Depth (ft)	PPM	From	To			0-6"	6-12"	12-18"	18-24"
							0.0	0.5	Black Asphalt	D				
							0.5	1.5	Olive to light brown, Sandy Clay with Fill Material	M				
							1.5	2.0	Olive, stiff, Clay	M				
							2.0	4.0	Olive to orange, medium dense, fine to medium grained Sand	W				
							4.0	6.0	Orange, medium stiff, Sandy Clay	M				
							6.0	6.5	Orange, medium dense, fine grained Sand	W				
							6.5	7.0	Orange, stiff, Sandy Clay	M				
							7.0	9.0	Orange to gray, stiff, fine grained Sand	S				
							9.0	10.0	Olive to gray, loose, fine grained Sand	S				

Notes and comments:

Well Constructed: 0' - 4' solid casing, 4' - 9' 0.010 screen

Prepacked Screen, 1" ID, Gravel Pack (#2 Morie Sand) 3' - 10', Bentonite Grout 0.5' - 3', Flush Mount Surface Casing

Moisture codes: D-dry, M-moist, W-wet, S-saturated